AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) A method of determining a rate of dilution of a lubricating oil by fuel of an internal combustion engine, where either the lubricating oil or the fuel is marked with a radioactive tracer, the method comprising:

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- measuring radioactivity of an oil sample using a detector that is sensitive to radioactive radiation emitted by the radioactive tracer,

- transmitting results of the measurements to a computer, and

- the computer calculating the rate of dilution of the lubricating oil by the fuel based on the results.

2. (currently amended) The method according to claim 1, wherein the lubricating oil contains the radioactive tracer.

3. (currently amended) The method according to claim 1, wherein the fuel contains the radioactive tracer.

4. (currently amended) The method according to claim 1, wherein the oil sample for which the radioactivity is measured is conveyed towards the detector and then re-injected into an oil system of the internal combustion engine by a deviation.

5. (currently amended) The method according to claim 4, wherein the deviation takes the oil sample from an area of the oil system of the engine which is under no or low oil pressure.

6. (currently amended) The method according to claim 1, wherein the radioactive tracer is an organic or mineral compound of a radioactive element.

7. (currently amended) The method according to claim 6, wherein the radioactive element has a half-life of less than 3 years.

8. (currently amended) The method according to claim 7, wherein the radioactive element is selected from the group consisting of ^{22}NA, ^{65}Zn, ^{45}Ca, ^{35}S, ^{32}P, ^{47}Ca, ^{99}Mo, ^{82}Br, ^{64}Cu, ^{99m}Tc, ^{28}Mg, ^{68}Ge, ^{69}Ge, ^{77}Ge, ^{85}Sr and ^{56}Co.

9. (currently amended) The method according to claim 8, wherein the radioactive tracer is selected from tetra-alkyl germaniums containing ^{69}Ge.

10. (currently amended) The method according to claim 1, wherein the detector is an ionizing radiation detection probe.

11. (currently amended) A system for monitoring a rate of dilution of a lubricating oil by fuel of an internal combustion engine, the internal combustion engine being lubricated by a lubricating oil and supplied with an air/fuel mixture, with either the lubricating oil or the fuel containing a radioactive tracer, the system comprising:

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- means for temporarily sampling and then re-injecting, continuously or discontinuously, an oil sample from an oil system of the internal combustion engine,

- a detector, sensitive to radioactive radiation emitted by the radioactive tracer present in the oil sample and operable to measure the emitted radioactive radiation, is provided adjacent to the means for temporary sampling and re-injection of the oil sample, and

- a computer, connected to the detector is programmed to calculate, from measurement results provided by the detector, the rate of dilution of the lubricating oil by the fuel.

12. (currently amended) The system according to claim 11, wherein the lubricating oil contains the radioactive tracer.

13. (currently amended) The system according to claim 11, wherein the fuel contains the radioactive tracer.

14. (currently amended) The system according to claim 11,

wherein the means for temporary sampling and re-injection of the oil sample is a deviation.

15. (currently amended) The system according to claim 11, wherein the means for temporary sampling and re-injection of the oil sample samples and re-injects the oil sample in an area of the oil system of the engine which is under no or low oil pressure.

16. (currently amended) The system according to claim 11, wherein

the radioactive tracer is an organic or mineral compound of a radioactive element.

17. (currently amended) The system according to claim 16, wherein the radioactive element has a half-life of less than 3 years.

18. (currently amended) The system according to claim 17, wherein the radioactive element is selected from the group consisting of ^{22}Na, ^{65}Zn, ^{45}Ca, ^{35}S, ^{32}P, ^{47}Ca, ^{99}Mo, ^{82}Br, ^{64}Cu, ^{99m}TC, ^{28}Mg, ^{68}Ge, ^{69}Ge, ^{77}Ge, ^{85}Sr and ^{56}Co.

19. (currently amended) The system according to claim 18, wherein the radioactive tracer is selected from tetra-alkyl germaniums containing ^{69}Ge.

20. (currently amended) The system according to claim 11, wherein the detector is an ionizing radiation detection probe.

21. (new) The method according to claim 1, wherein the radioactive tracer is an organic compound of a radioactive element.

22. (new) The method according to claim 6, wherein the radioactive element has a half-life of less than 1 year.

23. (new) The method according to claim 6, wherein the radioactive element has a half-life of less than 30 days.

24. (new) The method according to claim 8, wherein the radioactive tracer is selected from the group consisting of tetra-hexyl germaniums, tetra-heptyl germaniums and tetra-octyl germaniums or a mixture thereof.

25. (new) The system according to claim 11, wherein the radioactive tracer is an organic compound of a radioactive element.

26. (new) The system according to claim 16, wherein the radioactive element has a half-life of less than 1 year.

27. (new) The system according to claim 16, wherein the radioactive element has a half-life of less than 30 days.

28. (new) The system according to claim 18, wherein the radioactive tracer is selected from the group consisting of tetra-hexyl germaniums, tetra-heptyl germaniums and tetra-octyl germaniums or a mixture thereof.